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10/788,889	02/27/2004	Kevin Shea	303.867US1	4555
21186 7590 12/29/2006 SCHWEGMAN, LUNDBERG, WOESSNER & KLUTH, P.A. P.O. BOX 2938 MINNEAPOLIS, MN 55402			EXAMINER SULLIVAN, CALEEN O	
			ART UNIT 1756	PAPER NUMBER
SHORTENED STATUTORY PERIOD OF RESPONSE		MAIL DATE	DELIVERY MODE	
3 MONTHS		12/29/2006	PAPER	

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

## Office Action Summary

Application No.

10/788,889

Applicant(s)

SHEA ET AL.

Examiner

Caleen O. Sullivan

Art Unit

1756

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-50 is/are pending in the application.
- 4a) Of the above claim(s) 43-50 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-42 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 27 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 02/27/04 and 09/06/05.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_.

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
  - I. Claims 1-42, drawn to a process of treating a dry-developed hard mask, classified in class 430, subclass 322.
  - II. Claims 43-50, drawn to compositions for surface treatment of a dry-developed hard mask, classified in class 252, subclass 79.1.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product. See MPEP § 806.05(h). In the instant case the product as claimed can be used in a materially different process such as developing a photoresist layer.
3. Because these inventions are independent or distinct for the reasons given above and there would be a serious burden on the examiner if restriction is not required because the inventions have acquired a separate status in the art due to their recognized divergent subject matter, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Attorney David Suhl on 11-26-2006 a provisional election was made without traverse to prosecute the invention of Group I, claims 1-42. Affirmation of this election must be made by applicant in replying to this Office action. Claims 43-50 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

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5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

### *Drawings*

6. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because the resist layer in Figure 1A has been misnumbered with reference character "119" instead of reference character "118" as designated in the specification. (See, page 5). Also the resist stack in Figure 1A has been misnumbered with reference character "101" instead of reference character "100" as designated in the specification. (See, page 4). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

7. The use of the trademark Aleg® 820 has been noted in this application. It should be capitalized wherever it appears and be accompanied by the generic terminology. In the specification on pages 3, 9 and 11 the trademark Aleg® 820 is used but is not accompanied by the required generic terminology. Appropriate correction is required.

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Although the use of trademarks is permissible in patent applications, the proprietary nature of the marks should be respected and every effort made to prevent their use in any manner, which might adversely affect their validity as trademarks.

*Claim Rejections - 35 USC § 112*

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 3-6, 10-11, 14-15, 16-20, 22-23, 31-34 and 42 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contain subject matter, which was not described in the specification. In the aforementioned claims applicant includes limitations specifying "concentration ratios" for the "surface treating solutions" used in the process of removing residual photoresist; however, applicant has failed to describe in the specification if these "concentration ratios" are volume, weight, or mole ratios. For the purpose of examination, Examiner has considered the "concentration ratios" to be volume ratios in the rejections that follow.

9. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3-6, 10-38 and 42 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 3-6, 10-11, 14-20, 22-23, 31-34 and 42 are include the term "concentration ratio;" however, it is unclear as to whether the concentration ratio is a volume, a weight, or a mole ratio.

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For the purpose of examination, Examiner has considered the “concentration ratio” to be a volume ratio in the rejections that follow.

Claims 12, 16, 21, 35 and 37 include the phrase “... resist stack including at least one antireflective coating...selected from a dielectric antireflective coating and a bottom antireflective coating, ...” which Examiner considers to be a claim that includes a Markush group written in improper format. “Alternative expressions are permitted if they present no uncertainty or ambiguity with respect to the question of scope or clarity of the claims. One acceptable form of alternative expression, which is commonly referred to as a Markush group, recites members as being “selected from the group consisting of A, B and C.” See *Ex parte Markush*, 1925 C.D. 126 (Comm’r Pat. 1925). These claims should be amended to recite proper Markush Language.

Claims 13, 24-29, 32-34 and 36 contains the trademark/trade name Aleg®820. Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe Aleg®820 solution and, accordingly, the identification/description is indefinite.

### ***Claim Rejections - 35 USC § 103***

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 1-4, 7-14, 16-21, 24-35, 37, and 39-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu ('078) in view of Szwejkowski ('499).

Liu ('078) teaches a method of using amorphous carbon (APF) in the etching of a substrate. Liu ('078) discloses a structure that consists of a substrate on which an amorphous carbon layer and then a layer of photoresist are deposited. (See, col.5, 15-43; Fig. 2B). The features patterned into the photoresist layer are transferred to the amorphous carbon layer by a plasma etch and then the features patterned into the amorphous carbon layer are patterned into the substrate using the carbon layer as a hard mask. (See, col.5, 15-43). This disclosure teaches the limitation of claim 1-2, 7, 9-11, 24, 29, and 39-41, where a carbon containing hard mask over a substrate with a resist is patterned, where patterning the hard mask includes patterning amorphous carbon, and where the substrate is then patterned by a dry etch method through the hard mask.

Liu ('078) also teaches the structure disclosed may include a non-carbon based dielectric layer that is deposited over the amorphous carbon layer before the photoresist layer is deposited, which can also act as an antireflective coating (ARC). (See, col. 5, 56- col. 6, 45; Fig.3A-3F). This

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teaching meets the limitation of claims 12, 16, 21, 35 and 37 where an amorphous carbon hard mask that includes a resist stack is patterned. Moreover, this teaching meets the limitations of the aforementioned claims where the resist stack includes one ARC over the hard mask, which is selected from a dielectric anti-reflective coating (DARC) and a bottom anti-reflective coating (BARC), and a photoresist layer is over the at least one ARC.

However, Liu ('078) fails to teach a process step where the surface of the substrate is treated with a solution to remove residual resist under conditions that are not damaging to the underlying layers. Szejewski ('499) discloses a method, which teaches such process steps.

Szejewski ('499) discloses a method to remove sidewall residues remaining after a polysilicon layer that has been masked with a photoresist layer is etched. The residues from the etch process are removed without undercutting the remaining polysilicon, using a solution of ammonium hydroxide and peroxide. (See, col.2, 26-39 and 57-col.3,2). This disclosure teaches the limitation of claims 1-12, 14-16, 21, 24-29, 31-35, 37 and 40-41 where the substrate is treated with a solution of ammonium hydroxide and peroxide to remove residual resist under conditions that are not damaging to the underlying layers.

Szejewski ('499) also teaches the solution of aqueous hydrogen peroxide and ammonium hydroxide has a concentration ratio by volume of about 1 part hydroxide to 2 parts peroxide to 7 parts water, which is within the concentration ratio ranges recited in claims 3-4, 10 and 14. (See, col. 3, 38-40). Moreover, this disclosure meets the limitation of claims 31-34 where the solution has a concentration ratio of 5:1:1 of  $H_2O$ :  $NH_4OH$ :  $H_2O_2$ .

Szejewski ('499) further discloses that the solution is heated and maintained between about 50°C – about 70°C (See, col.3, 45-49), and the substrate is in the solution for about 5 seconds to about 15 minutes to remove the excess residue. (See, col.3, 50-57). These teachings fall within the



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time and temperature ranges, which are between about 2 to about 45 minutes and between about room temperature to about 70°C, recited in claims 7-9, 11, 14-20, 26-28, 30, 34, and 41 for applying the solution of ammonium hydroxide and peroxide or a solution that is comprised of ammonium hydroxide and peroxide and other components to the substrate.

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to modify the teachings of Liu ('078) with the teachings of Szejewski ('499) because polysilicon and carbon are in the same chemical series; therefore, it is obvious the cleaning solution and process disclosed in Szejewski ('499), used on a polysilicon layer can be used on a carbon layer to remove photoresist residue, while leaving the underlying layers undamaged.

13. Claims 5-6, 11, 15-16, 25-29 and 31-34, are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu ('078) and Szejewski ('499) as applied to claims 1-4, 7-14, 16-21, 24-35, 37, and 39-41 above, and further in view of Chen ('435).

Liu ('078) and Szejewski ('499) are relied upon as discussed in the rejection of claims 1-4, 7-14, 16-21, 24-35, 37, and 39-41 in paragraph 12 above.

Liu ('078) and Szejewski ('499) fail to disclose solutions of ammonium hydroxide and peroxide that may include other components with a concentration ratio of about 100:3:2 (claims 11, 15-16, 31-34), or a concentration ratio that ranges from about 100:1:2 to about 100:3:2 (claim 5) or from about 100:1:1 to about 100:3:3 (claim 6), H<sub>2</sub>O: NH<sub>4</sub>OH: H<sub>2</sub>O<sub>2</sub>. Dilute solutions of ammonium hydroxide and hydrogen peroxide, which may include other components, and are used as cleaning solutions, are disclosed in Chen ('435).

Chen ('435) discloses a method of cleaning or stripping photoresist from photomasks by using solutions of ammonium hydroxide and hydrogen peroxide. In one embodiment Chen ('435) discloses applying a very dilute solution of ammonium hydroxide and hydrogen peroxide, with

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concentration ratios of 1:2-10:200-1000 that can be simplified to a ratio of .5:1-5:100-500, at low temperatures to clean or strip photoresist from a photomask. (See, para. 0024). This disclosure meets the limitation of claims 5-6, 11, 15-16, 31-34 and 42, where solutions of ammonium hydroxide and hydrogen peroxide that may also contain other components, have a concentration ratio of 100:3:2 (claims 11,15-16, and 31-34), or a concentration ratio that ranges from about 100:1:2 to about 100:3:2 (claim 5) or from about 100:1:1 to about 100:3:3 (claim 6),  $\text{H}_2\text{O}$ :  $\text{NH}_4\text{OH}$ :  $\text{H}_2\text{O}_2$ .

Liu ('078) and Szwejkowski ('499) also fail to disclose treatment solutions of ammonium hydroxide and peroxide that may contain other components such as those recited in claims 25-29 and 33-34. Treatment solutions such as these are also taught in Chen ('435).

Chen ('435) discloses various solutions, which can be used to clean or strip resist from a photomask. One solution is comprised of an aqueous dilute solution of ammonium hydroxide and hydrogen peroxide (dAPM). (See, para. 0024 and 0027). One solution is comprised of sulfuric acid and ozone (SOM). (See, para 0020) Both components of this solution are recited in claims 25-29 and 33-34 as components that may be included in the treatment solution. The other solution is comprised of sulfuric acid and hydrogen peroxide (SPM), which includes components that are recited in claims 25-29 and 33-34 as other components of the treatment solution. (See, para. 0034). Chen ('435) further discloses the various solutions can be combined and applied to the structure to strip or remove photoresist. (See, para. 0034 and 0043). This disclosure in Chen ('435) teaches the limitation of claims 25-29 and 33-34 where the treatment solution can be comprised of various combinations of solutions including for example aqueous solutions of ammonium hydroxide and hydrogen peroxide (dAPM) and sulfuric acid and hydrogen peroxide (SPM).

The disclosures in Chen ('435) also meet the limitation of claim 35, where the surface treating solution includes ozone and the limitation of claim 36 where the surface treating solution is

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comprised of ozone (SOM) and one of the solutions recited in claim 36, which can be, for example, a solution of aqueous sulfuric acid and hydrogen peroxide, referred to as SPM in Chen ('435) (See, para. 0020).

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to combine the teachings of Liu ('078) and Szejewski ('499) with the teachings of Chen ('435) because Chen ('435) teaches that dilute solutions of ammonium hydroxide and hydrogen peroxide, that may include other components, can be used to remove residual resist from a photomask and leave the underlying layers undamaged.

14. Claims 21-23, 37-38 and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liu ('078) and Szejewski ('499) as applied to claims 1-4, 7-14, 16-21, 24-35, 37, and 39-41 and further in view of Fang ('338).

Liu ('078) and Szejewski ('499) are relied upon as discussed in the rejection of claims 1-4, 7-14, 16-21, 24-35, 37, and 39-41 in paragraph 12 above.

Liu ('078) and Szejewski ('499) fail to disclose treatment solutions of sulfuric acid and citric acid that may include other components, with a concentration ratio of 100:3:2 (claim 22) or 100:2:2 (claim 23) or within a range of about 100:3:2 to about 100:2:2 (claim 42),  $\text{H}_2\text{O} : \text{H}_2\text{SO}_4 : \text{C}_6\text{H}_8\text{O}_7$ . Solutions comprised of sulfuric acid and citric acid that include other components are disclosed in Fang ('338).

Fang ('338) teaches a method to deposit a cobalt containing capping layer. As part of this process there is a pre-clean step where the substrate is exposed to a complexing agent solution to remove oxides or other residues such as organic residues, resist, and other polymeric residues from previous fabrication processes. (See, para.0028). This pre-clean step is analogous to the step recited in claims 21 and 37, where the substrate is treated with a solution to remove residual resist without

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damaging the underlying layers. The complexing agent is a solution that consists of at least one acid, a pH adjusting agent and other additives including citric acid and other acids such as sulfuric acid. (See, para.0029).

One exemplary complexing agent solution disclosed in Fang ('338) is comprised of water, citric acid in a concentration ratio of .05M to about 1.0M, EDTA, sulfuric acid in a concentration of .05N to about 1.0N and TMAH or ammonium in a concentration to adjust the pH to a range from about 1.5 to 10. (See, para. 0030). This disclosure meets the limitation of claims 21-23 and 42 where the surface treating solution is comprised of sulfuric acid and citric acid and the limitation of claims 37-38 where the surface treating solution is a sulfuric acid containing solution and includes at least aqueous citric acid. Although Fang ('338) does not disclose the concentration ratio recited in claims 22, 23, and 42, one of ordinary skill in the art would be able to determine the appropriate concentration ratio to achieve a solution that would remove residual resist without damaging the underlying layers.

It would have been obvious to one of ordinary skill in the art at the time of invention by applicant to combine the teachings of Liu ('078) with the teachings of Szwejkowski ('499) and Fang ('338), because Szwejkowski ('499) and Fang ('338) teach that one can remove residual resist from structures such as the one disclosed in Liu ('078) with the solutions they disclose to prepare the structure for further processing without damaging the underlying layers of the structure.

### ***Double Patenting***

15. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101, which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d.438, 164 USPQ 619 (CCPA 1970).

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A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 12-23 and 35-38 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-12 and 24-27 of copending Application No. 11/494,056 (US-2006/0263729). This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

16. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1-11, 24-34 and 39-42 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 13-16, 19-20 and 23-24 of copending Application No. 11/494,056 (US-2006/0263729). Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims of copending Application No. 11/494,056 (US-2006/0263729) are broader recitations of the claims of Application No. 10/788,889.

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This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.


*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Caleen O. Sullivan whose telephone number is 571-272-6569. The examiner can normally be reached Monday-Friday, 8:30am-5:00pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

COS  
12-18-06

  
KATHLEEN DUDA  
PRIMARY EXAMINER  
GROUP 1100